Supplemental Specification
2005 Standard Specification Book

SECTION 02754

DOWEL BAR RETROFIT

Delete Section 02754 in its entirety and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Procedures and materials for installing coated dowel bars across existing transverse joints and cracks.

1.2 RELATED SECTIONS

A. Section 03211: Reinforcing Steel and Welded Wire

1.3 REFERENCES

A. AASHTO M 148: Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

B. AASHTO T 22: Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens

C. ASTM C 882: Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear

1.4 SUBMITTALS

A. Provide the Engineer with documentation from the manufacturer verifying that the patching material meets the requirements of this Section, article 2.1 paragraph F.

PART 2 PRODUCTS

2.1 MATERIALS

A. Dowel Bars: 1½ inch x 18 inch, smooth steel rod, following Section 03211.

B. Bond Breaking Compound: Use a bond-breaking compound approved by the Engineer.

C. Chair Devices: Coat according to Section 03211, or make of non-metallic materials, the devices used to support and hold the dowel bar in place.
   1. Provide a minimum clearance of ½ inch between the bottom of the bar and the surface upon which the chair is placed.

D. End Caps:
   1. Place on dowels, tight fitting end caps made of non-metallic materials that allows for ¼ -inch movement of the bar at each end.
   2. Submit a sample of the end caps to the Engineer for approval prior to use on the project.

E. Caulking Filler: Submit a sample of the caulking filler to the Engineer for approval prior to use on the project.

F. Patching Material:
   1. Use mix with ¼ inch nominal maximum aggregate size.
   2. Select a material that meets the following performance criteria:
      a. Material must achieve a minimum compressive strength of 4000 psi at 28 days. AASHTO T 22.
      b. Material must achieve a minimum bond strength of 1000 psi at 24 hours. ASTM C 882.

G. Joint/Crack Preservation Material: Use a rigid removable material capable of maintaining the joint or crack.

2.2 EQUIPMENT

A. Jackhammers: To prevent spalling, use jackhammer less than the nominal 30 lb class.

PART 3 EXECUTION

3.1 CONSTRUCTION

A. Saw cut the pavement as required per PV Series Standard Drawings.

B. Jackhammer and sand blast to clean all exposed surfaces and cracks, removing slurry and loose concrete.

C. Clean up and properly dispose of all residues from the saw, jackhammer and sand blasting process.

D. Place caulking filler in existing joint or crack to prevent intrusion of patching material. See PV Series Standard Drawings.

E. Pre-coat the dowel bars with a bond-breaking compound.

F. Place the foam core board on the dowel bar in line with the transverse joint or crack.

G. Fit the foam core board tightly around the dowel bar and to the bottom and edges of the slot.

H. Maintain the foam core board in a vertical position and tight to all edges during placement of the patching material as per PV Series Standard Drawings.

I. Place bars so that the bars do not extend more than 11 inches past the centerline of the slot.

J. Provide a minimum space of ½ inch in all directions around bar.

K. Repair or replace any dowel bars damaged at no cost to the Department.

L. Dampen thoroughly all surfaces of the slot immediately prior to filling with patching material.
   1. Prevent standing water in the slot.
   2. Remove all excess water with compressed air.

M. Fill the slot with an approved patching material.
   1. Consolidate the material in the slot and around the dowel bar with an appropriate size vibrator.
   2. Finish patching materials to existing surfaces.

3. Place and cure the patching material according to manufacturer's specifications.
4. Require a representative from the manufacturer of the patching material to be on-site for the first day's placement.
5. Cure using ASHTO M 148, Type 1-D, Class A.

N. Replace any individual dowel bar retrofit not functioning or damaged at no cost to the Department.

O. Remove joint preservation material as needed and repair per to a depth of 2 inches and reseal.

P. Obtain cores through the slot and dowel system to verify placement of the dowel bar and consolidation of the material around the dowel bar.
1. Obtain three cores from random locations from each of the first three production days.
2. Use cores from subsequent production days at the discretion of the Engineer.

END OF SECTION